

AMENDMENTS TO THE CLAIMS

Please amend Claims 28, 30, 32, 35, 36, and 38 to read as shown below and cancel Claim 33. Please add new Claims 41-44.

1 – 27. (Canceled)

28. (Currently Amended) An electroporation device, comprising:
an electronic array containing a plurality of circuits forming a 2D array of unit cells;
a conducting electrode material having a first side in electrical contact with the 2D array of unit cells of the electronic array and a second side opposite the first side, wherein the second side of the conducting electrode material comprises a microfiber glass that is suitable for plating and holding a monolayer of cells or lipid vehicles to be electroporated and wherein the conducting electrode material is selectively conducting such that each of the unit cells of the electronic array is independently conductive therethrough; and
a fluid flow chamber configured to perfuse the cells or lipid vehicles with a plurality of solutions defined by the second side of the conducting electrode material, a top disposed opposite the second side of the conducting electrode material and at least one sidewall separating the second side of the conducting electrode material and the top, wherein the top comprises an optical window.

29. (Previously Presented) The device of claim 28, wherein a first selective portion of the conducting electrode material operates as at least one anode and second selective portion of the conducting electrode material operates as at least one diode

30. (Currently Amended) The device of claim 29, wherein the first selective portion and the second selective portion are disposed in ~~[[an]]~~ a geometry selected from ~~[[the]]~~ a group ~~consisting of~~ comprising pairs, center surround, and parallel columns.

31. (Previously Presented) The device of claim 30, wherein the first selective portion and the second selective portion are repeated in an array across the conducting electrode material.
32. (Currently Amended) The device of claim 28, wherein at least one selective portion of the conducting electrode material operates as only one of an anode and cathode and wherein the top of the fluid flow chamber includes an opposing electrode.
33. (Canceled)
34. (Previously Presented) The device of claim 28, wherein the conducting electrode material is connected to the 2D array of unit cells via a plurality of spatially variant indium bumps, each corresponding to one of the 2D array of unit cells.
35. (Currently Amended) The device of claim 28, wherein the ~~top of the fluid chamber~~ optical window is at least partially transparent.
36. (Currently amended) The device of claim 28, wherein the fluid flow chamber ~~includes~~ comprises a fluid inlet and a fluid outlet.
37. (Previously Presented) The device of claim 36, wherein the fluid outlet further comprises a valve to prevent back flow.
38. (Currently Amended) The device of claim 28, further comprising a pump in fluid communication with the fluid flow chamber.
39. (Previously Presented) The device of claim 28, wherein the electronic array is fabricated on a silicon chip.

40. (Previously Presented) The device of claim 28, wherein a first selective portion of the conducting electrode material electroporates a first selective area of the monolayer of cells or lipid vesicles and a second selective portion of the conducting electrode material electroporates a second selective area of the monolayer of cells or lipid vesicles.
41. (New) The device of claim 28, wherein the optical window comprises a glass slide coverslip.
42. (New) The device of claim 28, further comprising an optical imaging system configured to image a plurality of cell markers through the optical window.
43. (New) The device of claim 42, wherein the plurality of cell markers comprise cell function and cell status.
44. (New) The device of claim 28, further comprising a tube connected to the fluid flow chamber and configured to store the plurality of solutions, the solutions comprising gene solutions, drug solutions, chemical solutions, and saline solutions.